
PART I - ADMINISTRATIVE

Section 1. General administrative information

Title of project

Continue With Implementation Of Pataha Creek Model Watershed Projects

BPA project number: 9401807

Contract renewal date (mm/yyyy): ☐ Multiple actions?

Business name of agency, institution or organization requesting funding
Pomeroy Conservation District

Business acronym (if appropriate) PCD

Proposal contact person or principal investigator:

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NPPC Program Measure Number(s) which this project addresses
7.6D, 7.7, 7.7A, 7.7B.3, 7.8B1

FWS/NMFS Biological Opinion Number(s) which this project addresses

Other planning document references

Pataha Creek Model Watershed Plan, Snake River Salmon Recovery Plan, Washington Department of Wildlife Wild Salmonid Recovery Plan, Wy Kan Ush Mi Wa Kish Wit, Bonneville Power Administration Tucannon Sub-Basin Plan.

Short description

Reduce the sedimentation from the Pataha Creek Watershed into the critical spawning and rearing area of the fall chinook salmon in the lower Tucannon River. Improve habitat for spawning and rearing steelhead in upper portion of Pataha Creek

Target species

Fall Chinook Salmon, Steelhead

Section 2. Sorting and evaluation

Subbasin

Lower Snake, Pataha Creek tributary to Tucannon River

Evaluation Process Sort

CBFWA caucus	Special evaluation process	ISRP project type
Mark one or more caucus	If your project fits either of these processes, mark one or both	Mark one or more categories
<input checked="" type="checkbox"/> Anadromous fish <input type="checkbox"/> Resident fish <input type="checkbox"/> Wildlife	<input type="checkbox"/> Multi-year (milestone-based evaluation) <input checked="" type="checkbox"/> Watershed project evaluation	<input checked="" type="checkbox"/> Watershed councils/model watersheds <input checked="" type="checkbox"/> Information dissemination <input type="checkbox"/> Operation & maintenance <input type="checkbox"/> New construction <input checked="" type="checkbox"/> Research & monitoring <input checked="" type="checkbox"/> Implementation & management <input type="checkbox"/> Wildlife habitat acquisitions

Section 3. Relationships to other Bonneville projects

Umbrella / sub-proposal relationships. List umbrella project first.

Project #	Project title/description

Other dependent or critically-related projects

Project #	Project title/description	Nature of relationship
9401806	Restore habitat for Fall and Spring Chinook, Steelhead, and Bull Trout	Pataha Creek is largest tributary into the Tucannon River and affects lower 12 miles.
9008	Lower Snake River Comp Plan	Sedimentation study of artifical redds in Tucannon River

Section 4. Objectives, tasks and schedules

Past accomplishments

Year	Accomplishment	Met biological objectives?
1994	Initiated Collaboration with Citizens and Agency Representatives on salmon issue in Pataha Creek Watershed	Set up landowner/steering and technical advisory committees. Began meetings and public information campaign..
1995	Pataha Creek Riparian Fencing Demonstration Project	Provide example of riparian fencing projects proposed in WS plan.
1995	Continue plan research and development	Continued meetings with committees for direction and guidance of watershed plan development.
1996	Fish Aquarium for Pomeroy Grade School	Educate students on life cycle of fish
1996	Continue plan research and development	Continued meetings with committees.
1996	Began cost-share program by installing upland and riparian practices for bank stability and erosion reduction	18,934 tons soil saved over previous years erosion rate. 3% reduction over previous year. Cost of \$2.60 per ton saved.
1996	Involved local schools in tree planting, invertebrate education	Planted 6,100 trees using students. BPA representatives conducted class on invertebrates.
1997	Continued plan research and development	Continued meetings with committees. Develop rough draft of watershed plan.
1997	ISCO samplers and temperature monitoring devices deployed in lower and upper Pataha Creek	Initiated monitoring to track water quality and temperature which are considered limiting factors in lower Tucannon.
1997	Continued installation of upland and riparian practices for bank stability and erosion reduction using cost share incentive program.	46,406 tons soil saved over 1995 erosion using practices cost shared. 7% reduction over 1995. Cost of \$2.72 per ton saved.
1998	Draft of Pataha Creek Model Watershed Plan printed.	SEPA review by Washington Department of Fish and Wildlife.
1998	Database being built from ISCO sampling with testing for total suspended solids. Temperature monitoring ongoing.	Data being gathered to show affect of practices being installed on water quality and stream temperature.
1998	Continued installation of upland and riparian practices for bank stability and erosion reduction using cost share incentive program.	47,418 tons soil saved over 1995 erosion using practices cost shared. 7% reduction over 1995. Cost of \$3.00 per ton saved.

1998	FY 99 installation of practices to date	10,993 tons soil saved over 1995 erosion using practices cost shared. 1.5% in only 2 months. Cost of \$2.50 per ton saved.
1998	Contracted with WSU for additional monitoring of water quality, invertebrates and upland conservation practices.	Monitor several upland conservation practices for effectiveness (no-till versus conventional seeding, terraces, etc). Test water quality on bi-weekly basis. Invertebrates 2 times a year.

Objectives and tasks

Obj 1,2,3	Objective	Task a,b,c	Task
1	Continue to implement the Pataha Creek Model Watershed projects as outlined in watershed plan.	a	Continue to coordinate the watershed plan as directed by the landowner/steering and technical advisory committees.
		b	Coordinate further plan development and modification, Biological assessment, permit requirements and landowner contracts.
		c	Administer district cost-share program between cooperator, contractors, NRCS and other state and local agencies.
		d	Continue monitoring program in cooperation with WDFW, NRCS staff to evaluate effectiveness and success of practices installed. Maintain existing monitoring equipment and demonstration projects.
		e	Continue information education program through newsletters, news articles, school programs and tours.
2	Reduce Sediment Deposition in Spawning Gravels by reducing cropland and streambank erosion.	a	Increase no-till and two pass seeding in watershed by 25% over previous year's installation.
		b	Construct or rebuild existing structural practices (terraces, waterways, sediment basins) where needed and other practices are not feasible.
		c	Construct riparian fencing to protect

			new plantings and protect buffer strips where needed. Also manage livestock in this area to allow for critical vegetative regrowth.
		d	Develop riparian buffer strips where Conservation Reserve Enhancement Program does not apply.
		e	Plant trees and shrubs along eroding banks to jump start revegetation process.
		f	Promote Conservation Reserve Enhancement Program along Pataha Creek and other small tributaries.
		g	Promote riparian restoration and enhancement projects.
3	Improve riparian corridor to maintain lower water temperatures and reduce stream bank erosion	a	Develop additional riparian buffer strips to promote growth of natural vegetation that will shade stream.
		b	Install riparian fencing where needed to allow natural vegetative regrowth during critical times of year.
		c	Plant trees and shrubs to generate shade, stabilize banks, and LWD recruitment.
4	Secure additional funding and develop funding partnerships for practice installation.	a	Continue matching Bonneville funding with landowner, local and state agencies.
		b	Provide data and information on results of practice installation and the resulting sediment reduction.
		c	Provide legislators with watershed activities and results to secure additional state funding.
5	Continue with implementation of monitoring program	a	Coordinate monitoring program with WSU, WDFW, and schools.
		b	Continue water quality monitoring program with local schools.
		c	Continue monitoring of water quality with WSU or other reputable agency.
		d	Analyze data from upland conservation practice comparison and continue study with WSU if necessary.

6	Continue watershed education/outreach program for landowners, residents and local schools.	a	Provide landowners, residents access to workshops, field visits, field trips, etc. Continue to provide watershed education and monitoring project curriculum to local schools.
		b	Continue "Salmon in Classroom" program and provide classroom instruction on watershed health.
		c	Sponsor field trip to WSU water quality lab for high school class.
		d	Sponsor registrations to conferences, field tours and other seminars.

Objective schedules and costs

Obj #	Start date mm/yyyy	End date mm/yyyy	Measureable biological objective(s)	Milestone	FY2000 Cost %
1	12/1999	12/2000	Increase presence and effectiveness of conservation efforts with cost-share programs to off-set practice installation costs to landowners and operators.	Match funds from BPA, WDFW, Conservation Commission, WA HB 2496	24.00%
2	12/1999	12/2000	Increase number of tons saved each year by installing more cost efficient and effective conservation practices. No-till, 2 pass seeding will be major focus for erosion reduction.	130,732 tons of soil saved since 1994. Average cost per ton saved \$2.91. 19% reduction since 1994.	45.00%
3	12/1999	12/2000	Increase acres of riparian buffer strips, footage of riparian fencing, tree plantings, off-site watering facilities.	In last three years: 25,579 feet of riparian fence constructed, 22 acres of riparian buffer, 7880 trees planted, and 3 off-site watering facilities developed.	14.00%

4	12/1999	12/2000	Increase funding from all sources to level where effective conservation practice installation will continue to increase.	BPA, Wash. Department of Fish & Wildlife, State Legislature through HB2496 have provided funding.	1.00%
5	12/1999	12/2000	Work with WSU and schools to gather needed information through monitoring to determine effectiveness of practices installed.	PCD soil lab has conducted testing in past. Teachers are using water quality as part of class room curriculum	14.00%
6	12/1999	12/2000	Continue tours, newsletters/articles and other materials on improvement methods	Annual cropping, no-till seeding being accepted and used in county at increasing rate.	2.00%
				Total	100.00%

Schedule constraints

There should be no schedule constraints. This is a continuation proposal that will aid in the implementation of conservation and enhancement practices to reduce sedimentation into the spawning/rearing area of the lower Tucannon River.

Completion date

2003

Section 5. Budget

FY99 project budget (BPA obligated): \$180,000

FY2000 budget by line item

Item	Note	% of total	FY2000
Personnel	.8 FTE Watershed Technical Lead .5 FTE Admin. Assistant	% 16	34,622
Fringe benefits	Insurance, Soc. Sec., medicare	% 5	11,693
Supplies, materials, non-	Office supplies, monitoring supplies,	% 1	3,980

expendable property	mailings		
Operations & maintenance	Maintenance of existing demonstration projects and monitoring sites	%0	1,300
Capital acquisitions or improvements (e.g. land, buildings, major equip.)			
NEPA costs			
Construction-related support			
PIT tags	# of tags:		
Travel	Travel to, registration for meetings, seminars, conferences.	%1	3,900
Indirect costs			
Subcontractor	No-till and two pass seeding	%38	81,000
Subcontractor	Terrace, Grassed WW, sediment basins, other practices	%7	15,000
Subcontractor	Riparian Fencing, buffer strips	%9	20,000
Subcontractor	Off-site watering	%4	10,000
Subcontractor	Water quality, soil erosion monitoring	%13	29,000
Other	Tree planting and other practices	%1	2,500
TOTAL BPA FY2000 BUDGET REQUEST			\$212,995

Cost sharing

Organization	Item or service provided	% total project cost (incl. BPA)	Amount (\$)
Bonneville Power	Cash Match	%29	213,000
Wash. St HB 2496	Cash Match for restoration on Alpowa and other county creeks	%17	125,000
Conservation Commission	Cash Match for implementation projects, Basic Funding	%7	50,000
WSU	SARE Grant to study upland erosion	%5	40,000
NRCS	Office space, utilities, phone and vehicle use	%3	25,000
Landowners	Cash match of Cost Share Practices Implemented	%6	45,000
Total project cost (including BPA portion)			\$710,995

Outyear costs

	FY2001	FY02	FY03	FY04
Total budget	\$200,000	\$190,000	\$180,000	\$170,000

Section 6. References

Watershed?	Reference
<input checked="" type="checkbox"/>	Reckondorf & VanLiew, 1989. Determine the affect of sedimentation on artificial redds at four sites in the Tucannon Watershed. Study completed. Soil Conservation Service.
<input checked="" type="checkbox"/>	Tucannon River Watershed Plan (USDA 1991) This plan was prepared under authority of PL-566 and recommends certain conservation practices that would lower water temperature and reduce the amount of sediment delivered to the stream.
<input checked="" type="checkbox"/>	Hecht et al. 1982. Sediment Transport, Water Quality and Changing Bed Conditions, Tucannon River, Washington. This plan identified and discussed the efforts of land use and other watershed influences on the water quality and fish habitat of the river.
<input checked="" type="checkbox"/>	Southeast Washington Cooperative River Basin Study (USDA 1984), The objective of this study was to provide a basin-wide evaluation of existing land management and stream habitat conditions related to erosion and sediment problems.

PART II - NARRATIVE

Section 7. Abstract

This proposal requests Bonneville funding for FY 2000 **Continue with Implementation of Pataha Creek Model Watershed Projects**. The lower reach of the Tucannon River is one of the Snake River fall chinook's last remaining natural spawning area. Pataha Creek is the largest tributary to the Tucannon River and sediment from the watershed adversely affects spawning areas in the lower 13 miles of the Tucannon covering redds with silt.

The specific objectives of this proposal are to: 1.) Continue to coordinate Pataha Creek Watershed planning and direction among landowners, federal, state, and local government agencies. 2.) Reduce sediment deposition in spawning gravels by reducing cropland and streambank erosion. 3.) Improve riparian corridor to maintain lower water temperature and reduce stream bank erosion. 4.) Secure additional funding and develop funding partnerships for practice installation. 5.) Continue monitoring program. 6.) Continue watershed education/outreach program for landowners, residents and local schools.

The goal of this proposal is to reduce sediment in the Pataha creek to a level that will not adversely affect the fishery of the Tucannon River. The practices implemented to benefit the chinook salmon and steelhead in the lower Tucannon will also benefit the steelhead that spawn and rear in the upper portions of the Pataha watershed.

Over the last four years, the Pomeroy Conservation District (PCD) has been implementing the Pataha Creek Model Watershed Plan to reduce the amount of erosion occurring from the uplands and riparian areas. Upland conservation practices such as annual cropping, no-till and two pass seeding will be targeted for implementation with incentives through a cost share program. These practices can reduce upland erosion rates by 95%. Existing practices such as terraces, waterways, etc. will be maintained and new construction completed if deemed necessary. Bank stabilization will be addressed through establishment of buffer strips, fencing and tree/shrub plantings. These practices will allow for natural restoration of the riparian zone with cost effective methods. Additional CRP (Conservation Reserve Program) plantings will also be promoted.

The monitoring of water quality and effectiveness of upland conservation practices is being done by PCD, local school and WSU. Data gathered is being used to evaluate conservation practices that are cost efficient and effective. Implementation of future practices will be determined by these results.

Specific measurable outcomes of the watershed actions include: 1) an increase in salmonid production in the lower Tucannon River, 2) an increase in the habitat for resident and anadromous fish and wildlife, 3) data availability on comparison of different conservation practices, 4) increased public awareness of the actions necessary to protect fish and wildlife habitat and water quality, and 5) an increase in farm productivity due to reduced erosion.

Section 8. Project description

a. Technical and/or scientific background

Due to the high value of the fish resource in the Tucannon River, there have been many studies and planning efforts directed at restoring resource conditions in this watershed. Pataha Creek, as the largest subwatershed in the Tucannon watershed has been identified as one of the primary contributors of sediment to the Tucannon River. One of these studies was conducted by Frank Reckondorf and Mike Van Liew in 1986. It was conducted to study the sediment intrusion into artificial redds in the Tucannon Watershed. The data indicated a marked increase in the percentage of fines and sand sized material present in the redds due to sediment intrusion from winter runoff on the Tucannon River. The apparent decrease in both pore size and relative permeability of the artificial redds to sediment intrusion reflects a potential decrease in the survival-to-emergence of salmonid.

Under the Reckondorf, Van Liew study, the affects of fine sediments and organic matter on salmonid reproduction have been studied intensively for more than three decades, both in situation and the laboratory. Sands, silts, clays and organic matter deposited in gravel spawning beds -- referred to a redds -- adversely affect the survival to emergence of salmonid populations. Clogging of gravel beds by fine sediments and organic matter reduce the availability of dissolved oxygen needed by salmonid embryos and fry. Fine sediments that are deposited in gravel beds also restrict metabolic wastes produced by incubating salmonid eggs (Alonso et al, 1988). Moreover, fine sediments that clog the interstices of gravel spawning beds entrap the fry within the gravel as they try to emerge.

This proposal, by providing for the administration, implementation and monitoring of the Pataha Creek Model Watershed Projects, will lead to the reduction of the sediment coming from the Pataha Watershed. This reduction will be lowered to a level that will not adversely affect fall chinook production in the lower Tucannon River.

For the last 5 decades and beyond, farmers have believed that one half of the land must lie fallow for one out of two years. This practice was believed to rest the soil and accumulate enough moisture to produce a grain crop with yields to provide a profit at the end of two years. Unfortunately, this practice leaves the soil profile filled to capacity and leads to severe erosion and runoff..

As time progressed, farmers in the mid to high rainfall areas realized that a three year rotation could be used to produce two crops in three years. This practice did produce a situation where the soil was protected two out of three years and a resulting reduction in erosion occurred.

It has now been shown by both researchers and farmers that a continuous cropping program in the mid to higher rainfall areas is the most cost efficient method of producing crops. Along with the efficiency of this program, it also provides one of the best soil protection methods available.

The Pataha Watershed consists of 117,000 acres of which 52,000 acres is cropland. In 1986 it was estimated that over 1,060,000 tons of soil eroded from this cropland. That is enough soil each year to cover a football field to a depth of 1,696 ft.. Of this amount, estimates of 177,600 tons, 17%, was delivered into the lower portion of the Tucannon River. These figures, being over 12 years old and with the Food Security Act of 1985 being implemented, could be lowered by 25% due to the increased implementation of conservation practices outlined in that act. Today's figures could be estimated at 700,000 tons eroded with 117,000 tons delivered at an average of 12 tons per acre. With these figures in mind, the following scenario has now occurred.

Under this project of sediment reduction, the following practices were outlined to be implemented. A before and after erosion rate is determined using the RUSLE (Revised Universal Soil Loss Equation). The before and after rates were averages from practices implemented in the Pataha WS since 1995. The soil savings follow each practice.

Practice:	acres protected	erosion rate (tons/year)		total saved	cost/ton
		before	after		
No-till seeding	5,355	13.6	2	62,118 tons	\$ 1.38/ton
Terraces *	1,394	11.0	2.8	11,432 tons	\$ 3.86/ton
Waterways **	21	138	1	2,877 tons	\$ 4.96/ton
Bank stabilization ***	5,440 ft.	Over 2 year period		5,440 tons	\$14.87/ton

Total reduction in erosion 81,867 tons

Total reduction in sediment delivered to Tucannon River 13,917 tons

* actual acres are determined using length (202,436 ft.) times 300 ft. (area below terrace protected) divided by 43,560 sq. ft.

** actual acres determined by using length (30,730 ft.) times 30 ft. (average width) divided by 43,560 sq. Ft.

*** tonnage saved determined by length times 20 ft. (average height of bank) times .5 ft. (horizontal loss per year) times 100 (weight of soil) divided by 2,000.

The implementation of these four practices alone shows the reduction of 13,917 tons of sediment entering the Tucannon River. This is a reduction of 12 % over the last two years.

The problem of sediment deposition will not be solved in one or two years. From 1985 to 1995, the erosion rate in the Pataha Watershed has been reduced by roughly 25%. In the three years of implementing the watershed plan, another 12% reduction has been realized. This is due to the concentration on the implementation of effective, cost efficient conservation practices. As the program gathers even more interest, an increased acceptance will be noted. The current trend towards annual cropping, no-till and two pass seeding will continue to grow. The introduction of the CREP (Conservation Reserve Enhancement Program) along with riparian fencing and tree and shrub plantings will increase the effectiveness of the overall program. The benefits of these practices, both economically and conservation efficiency, will continue to realized. Practices and programs that now require cost share as an incentive, will be accepted and adopted as common practices. As this happens, the implementation costs of the program will continue to be reduced. In conclusion, sediment deposited in the redds located within the lower 13 miles of the Tucannon River from the Pataha Creek Watershed have a direct impact on the salmonid production in this area. The reduction of this sediment will positively affect salmonid production in this area of the Tucannon River.

b. Rationale and significance to Regional Programs

Continuing a program of sediment reduction into the Tucannon River from the Pataha Watershed has a regional significance in the context of the Lower Snake River. The Pataha Creek is the largest tributary of the Tucannon River. The sedimentation from the

Pataha Watershed adversely affects the spawning area of the lower Tucannon River. Reducing this sediment will increase salmonid production from the Tucannon River. The Pataha Creek Watershed is providing a model of what practices are necessary to reduce sedimentation from dryland dropping and riparian areas. A large portion of the state is dryland agriculture. Many of these areas also contribute sediment into salmonid producing streams. Information gathered during this model watershed program will aid other similar watersheds in reducing their sedimentation problems. The Pataha Creek Model Watershed is playing a critical role in the state's basin-wide strategy for protecting and restoring fish and wildlife habitat and monitoring erosion rates and water quality. Through these activities the PCD is developing excellent working relationships with other watershed groups, landowners, state and federal agencies.

c. Relationships to other projects

The Pataha Creek Model Watershed was selected as a "model watershed" in 1993 by the Northwest Power Planning Council and the Bonneville Power Administration. Two other watersheds, Asotin Creek watershed and the Tucannon River watershed, were also selected as models. These watersheds were selected as part of the Northwest Power Planning Council's 1994 "Strategy For Salmon." Section 7 of the "Strategy" specifically addresses the use of locally based model watersheds to work at developing fish habitat protection and restoration measures.

The Pataha Creek Model Watershed Plan has a primary emphasis on the improvement of fall chinook salmon critical habitat by reducing sedimentation from the Pataha watershed. Effective upland conservation practices coupled with riparian improvement are currently being addressed to reduce the sediment.

Both the Asotin and Tucannon have similar plans ongoing to restore and enhance habitat for the salmon in their streams. They continue to implement in-stream structures, woody debris placement, riparian projects and upland practices to accomplish the habitat improvement. All three watersheds use the same technical advisory committee and work very closely with our projects. Material used is often traded between watersheds.

All three conservation districts have received funding from WDFW to address fish habitat conditions in other watersheds in their districts. The PCD is currently working in the Alpowa Creek, Deadman Creek and other streams of Garfield County to begin the improvement of habitat in those watersheds. Critical needs assessment under Washington State HB2496 will begin soon in these Garfield County watersheds.

d. Project history (for ongoing projects)

In 1993, the Pataha Creek Watershed was selected as one of three Washington Model Watersheds. In 1994, the Pomeroy Conservation District received funds from BPA of \$20,000 to install demonstration projects in 1994 and begin funding of the technical lead

position. Riparian fencing, tree planting, and off-site watering facilities were completed with this funding. From October of 1994 through Sept. 1998 the Pomeroy CD has received \$322,778 from BPA for the installation of upland conservation practices, riparian buffers and fencing, off-site watering facilities and some direct instream fish habitat enhancement projects. The proposal # for those funds is 9401807. For that same period of time the BPA has provided \$186,565,000 for the administration of the program by the technical lead position. That contract # was 9292602. Watershed funding and resulting conservation and restoration projects include:

	1995	1996	1997	1998
WA St. Conservation Commission	\$62,761	\$ 76,076	\$ 88,963	
Bonneville Power Administration	\$ 4,601	\$126,741	\$206,387	\$171,606
WA HB 2496				\$ 45,607
Landowner match, cost share		\$ 67,605	\$ 98,450	\$ 72,405
Totals	\$ 62,761	\$270,422	\$393,800	\$289,618

Upland and Riparian Practices	1995	1996	1997	1998
Education Projects		1 Aquarium		
Channel Vegetation		1,197 ft.		
Subsoiling			949 ac.	1,947 ac.
No-Till Seeding		1,085 ac.	1,460 ac.	2,015 ac.
Two Pass Seeding				795 ac.
Critical Area Seeding		2.4 ac.	15.4 ac.	17.6 ac.
Sediment Basins		3,128 cyd	586 cyd	24,865 cyd
Sediment Basin cleanout			5,982 cyd	940 cyd.
Divided Slope		39.7 ac.		250 ac.
Upland Fencing				
Riparian Fencing	1,780 ft.		2,092 ft.	9,082 ft.
Riparian Buffer Strip		1.5 ac.	15.2 ac.	5.33 ac.
Upland Buffer Strip		2.6 ac.		24.4 ac.
Fish Stream Improvement			600 ft.	
Grass In Rotation			87.9 ac.	
Grass Waterway		7,596 ft.	7,683 ft.	15,451 ft.
Pipe Line				
Spring Development				
Stream Bank Protection		125 ft.	1,665 ft.	3,650 ft.
Strip Cropping			575.6 ac.	57.1 ac.
Terrace Installation			44,203 ft.	9,852 ft.
Terrace Rebuild		26,762 ft	55,818 ft.	65,801 ft.
Tree Planting		1,780 trees	6,100 trees	6,000 trees
Off Site Watering			2 sites	

The practices installed over the last 4 years show an increase in the interest by producers and landowners. Education and cost share incentives is the key to this program. Monitoring and evaluation of individual projects will determine the future installation of practices. Project monitoring and evaluation for Pataha Creek practice installation include:

- Current monitoring programs include total suspended solids being collected at two ISCO water sample sites. These samples are collected twice a day with the sampler holding 24 days. This test is conducted in the PCD local soil lab and the data recorded in a district database. Water samples are collected every 24 days at the sites and this information recorded. Samples taken are pH and Dissolved Oxygen. Beginning the fall of 1998, WSU was contracted to do further water quality analysis. Samples will be gathered at 5 sites in the watershed every two weeks. Samples taken and analyzed will be sediment, coliforms, temperature, discharge, ammonia, nitrate (once/2-months), total nitrogen, and total phosphorous. These results will be reported to the PCD every quarter by WSU. Prioritization of practices will be determined by the landowner/steering and technical advisory committee with this data being used as a factor in practice selection.
- Photographs are being taken regularly through out the watershed of practices installed.. Photo points are being set up at selected sites in the riparian area to determine streambank changes.

e. Proposal objectives

This proposal requests funding for *9401807 Continue with Implementation of Pataha Creek Model Watershed Projects*. The funding will be used for installation of effective upland conservation practices, riparian restoration practices, administration, information/education, and monitoring. Other funding is available from state agencies to address salmon issues in other watersheds of the PCD. Specific implementation objectives are:

1. Reduce sediment deposition in spawning gravels of Tucannon River by reducing cropland and streambank erosion.
2. Improve riparian corridor to maintain low water temperatures and reduce stream bank erosion.

Coordination/administration objectives include:

1. Continue coordination of Pataha Creek Model Watershed project prioritization, planning and implementation.
2. Secure additional funding and develop funding partnerships for practice installation.
3. Continue implementation of monitoring program.

4. Continue watershed education/outreach program for landowners, residents and local schools.

The objectives for this year have been addressed in past proposals. An ongoing effort is underway to carry these objectives to a greater degree each year. The program is a long term effort for salmon recovery in this watershed. Other watersheds throughout the state are also involved in this program. Although our watershed program is only a small portion of the overall program, results obtained from our model program will aid other watersheds in moving forward in their individual restoration programs. We are learning from our experiences and hope to continue with our program. We can make a difference in watershed and economic health and when given the chance the entire region can benefit.

f. Methods

Objective #1: Continue to implement the Pataha Creek Model Watershed Plan.

Goals: Provide the leadership and guidance to the Landowner/Steering and Technical Advisory committees to continue the development and implementation of effective upland conservation practices and riparian restoration practices according to the Pataha Creek Model Watershed Plan.

- Tasks:
- * Coordinate watershed plan as directed by committees and monitoring data.
 - * Use adaptive management to redirect plan when necessary.
 - * Administer cost-share program for effective upland and riparian practice installation.
 - * Coordinate and help administer monitoring plan of water quality and upland conservation practices effectiveness.
 - * Publish news articles, newsletters, sponsor workshops, tours and seminars.

Objective #2: Reduce sediment deposition in spawning gravels of Tucannon River by reducing cropland and streambank erosion.

Lower Snake Co-managers objective: Increase incubation success

Goals: Reduce the sedimentation from the Pataha Creek Watershed into the Tucannon River.

- Tasks:
- * Increase no-till and two pass seeding by 25% over previous years acreage.
 - * Construct and rebuild terraces, waterways, and sediment basins to original specifications where necessary.
 - * Construct riparian fencing to protect new plantings and buffer strips if needed.
 - * Develop riparian buffers using CREP program or watershed cost-share.
 - * Plant trees along eroding streambanks.
 - * Promote CREP and WDFW restoration programs to landowners and operators.

Objective #3: Improve riparian corridor to maintain low water temperatures and reduce stream bank erosion.

Lower Snake Co-Managers objective: Increase incubation success

Goal: Stabilize banks along Pataha Creek with better management to reduce erosion and shade the stream maintaining lower water temperature.

- Task:
- * Develop additional riparian buffer strips
 - * Install riparian fencing
 - * Plant trees and shrubs
 - * Develop additional off-site livestock watering facilities

Objective #4: Secure additional funding and develop funding partnerships for practice installation.

Goal: Continue to install additional conservation and restoration practices at an increasing amount each year to reduce the sedimentation into Tucannon River. Eventually reduced to a level that will not adversely affect the chinook redds.

- Tasks:
- * Continue matching Bonneville funding with landowner, local and state agencies to continue increasing the numbers of practices.
 - * Provide information on results of practice installation and there affect on sediment reduction.
 - * Provide legislators with watershed activities and results of practice installation.

Objective #5: Continue implementation of monitoring program.

Goal: Obtain the information needed from monitoring to advise landowners, state and local agencies, and others on the best practices to utilize in reducing sedimentation.

- Tasks:
- * Coordinate water quality monitoring with WSU, WDFW, and local schools.
 - * Continue water quality monitoring program with WSU and school.
 - * Analyze results of upland conservation practice comparison.

Objective #6: Continue watershed education/outreach program for landowners, residents and local schools.

Goal: Provide information to landowners and residents through workshops and other sources to direct them towards better and more efficient conservation practices.

- Tasks:
- * Provide workshops, field visits, field trips and seminars.
 - * Provide “Salmon in Classroom” program for elementary students.
 - * Sponsor field trips for high school students to WSU and local area.
 - * Sponsor registrations to conferences, field tours and other seminars.

g. Facilities and equipment

The facilities and equipment necessary for this proposal are sufficient to complete all the tasks outlined in this proposal. The PCD has the necessary office space, computers and equipment, phone service, internet access, and monitoring equipment. Vehicles and technical assistance are provided by NRCS. This proposal is requesting the funding for the .8 FTE coordination and administration and .5 FTE administrative assistant of the Pataha Creek Model Watershed program, travel, day to day office supplies, and the cost sharing of upland and riparian conservation and restoration practices.

h. Budget

The proposal for FY2000 continued funding is consistent with previous Bonneville funding. The proposal is consistent with past years because the district has a Memorandum of Understanding with NRCS. The agreement allows for district use of vehicles, fuel, office space, electricity, phone service, access to maps and other material, technical services, and other indirect costs.

Previously the PCD has used Bonneville funding and WCC funding for .8 FTE Model Watershed Coordinator and .5 FTE Administrative Assistant. That will continue with this proposal. Although the workload continues to grow, the experience of past years has helped to streamline the cost-share program and report writing.

The increased interest in the landowner's use of the latest technology such as no-till and two pass seeding has directed the program in a focused direction over the last year. The reduction of erosion has been the focal point of conservation districts for years. These two practices have documented results of a 95% reduction over conventional methods. With that in mind, a tremendous step can be taken over the next couple years in making a continued large impact on the sediment reduction in the Pataha Creek and other watersheds.

Section 9. Key personnel

Resume for Duane Bartels
Pataha Creek Model Watershed Technical Lead

Education: Associate Degree Electronics, Spokane Community College 1967

Current Employers: Pomeroy Conservation District , Pomeroy, WA. Other employment is as a self-employed wheat farmer.

Current Responsibilities: Manage the everyday operation of the Pomeroy Conservation District. This includes handling all the districts finances and record keeping. Coordinates and implements the district plan for the short and long term conservation of our districts natural resources. Oversee the district cost-share program for soil conservation through erosion reduction practices and the improvement of fish and wildlife habitat through improved riparian management and instream fish habitat improvement. Since 1993, directed the research and planning of the Pataha Creek Model Watershed Plan, and directed implementation of many practices set forth in the watershed plan. Works to direct technical assistance provided by the NRCS to get the most effective conservation and restoration practices on the ground.

FTE / Hours Spent on this project: .8 FTE / 1,664 Hours

Previous Recent Employment:

- * 1989 - Present District Mgr. Pomeroy CD
- * 1987 - 1989 Truck Driver
- * 1985 - 1994 Owner Operator of Convenience Store
- * 1983 - 1985 Soil technician for Soil Conservation Service
- * 1966 - 1983 Self employed wheat, alfalfa farmer

Expertise: Involved in the conservation movement since 1966. Elected to district board as supervisor in 1976 until 1983. Served as chairman of the board for five of those years until going to work for Soil Conservation Service as a Soil Technician. As a Soil Technician, received training in soil sciences, basic engineering and other courses pertaining to soil and water conservation. Born and raised in this county and have lived here all my life. Have actively farmed since 1966 when I took over the family farm. Having been born and raised in the county, I know the farmers personally and am familiar with their operations. This has helped facilitate the development of the model watershed plan by getting local farmers to participate in the watershed planning process, and also to get the practices on the ground and in the stream. I have attended many conferences on no-till farming, and have used the practice over the last seven years. I have helped to introduce the concept to many farmers in the county and many are adapting the practice as part of their farming operations.

Resume for Jeff Harlow

District Conservation for NRCS in Pomeroy, WA

Education: B.S. in Agricultural Economics 1975, Washington State University

Current Employers: USDA Natural Resources Conservation Service.

Current Responsibilities: Assist the Pomeroy Conservation District to carry out a coordinated soil and water conservation program in Garfield County. I am the USDA Service representative in the field office and work with other agencies where a joint effort is required to develop and conduct soil and water conservation programs. I direct the field office operations and provide technical assistance to urban and rural landusers as individuals or in groups in the development, applications, and maintenance of soil and water conservation plans and resource inventories and evaluations. Analyze work loads, develop annual plans of operation, and establish goals in line with needed available manpower, and other resources. Provide technical assistance to units of government in broad resource planning. Also develop and revise as needed, technical guides and job sheets for the field office. Collect or supervise the collection of the data and information necessary for the development and revision of the guides and sheets. Am responsible for the administration of the field office and the supervision of the staff. Maintain a system of required service records and prepare periodic reports from these. Contribute to the Department's rural development function by providing information to farmers, ranchers, and other rural residents, on the finds of assistance available from the several USDA agencies in the county including nature of programs and how and where to apply for assistance.

FTE / Hours Spent on this project: .5 FTE / 1,300 Hours

Previous Recent Employment:

- * 1987 - Present USDA NRCS
- * 1975 - 1987 Dryland wheat, barley, pea farmer

Expertise: Professional knowledge of a broad range of soil and water conservation principles, methods, and techniques sufficient to assess, analyze and evaluate complex natural resource conditions, interpret related social and economic conditions and to devise and implement short or long-term conservation plans or integrated resource development project plans. Knowledge and skill to develop soil, water, and resource conservation plans for individuals, groups, and units of government, involving varied soil patterns and practices. Knowledge and skill in written and oral communication techniques sufficient to clearly explain soil and water conservation issues, problems and solutions to diverse groups or rural and community landowners, units of government, residents, and agri-business representatives. Knowledge of related disciplines including: agronomy, hydrology, soils, range management, forestry, and applicable engineering elements, in

order to recommend alternative resource development strategies or design and conduct feasibility studies for multipurpose projects or formulate difficult major resource conservation cost sharing proposals.

board as supervisor in 1976 until 1983. Served as chairman of the board for five of those years until going to work for Soil Conservation Service as a Soil Technician. As a Soil Technician, received training in soil sciences, basic engineering and other courses pertaining to soil and water conservation. Born and raised in this county and have lived here practically all my life. Have actively farmed since 1966 when I took over the family farm. Having been born and raised in the county, I know the farmers personally and am familiar with their operations. This has helped facilitate the development of the model watershed plan by getting local farmers to participate in the watershed planning process, and also to get the practices on the ground and in the stream. I have attended many conferences on no-till farming, and have used the practice over the last seven years. I have helped to introduce the concept to many farmers in the county and many are adapting the practice as part of their farming operations.

Resume for Richard Stauty

USDA Natural Resources Conservation Service

Education: AA Environmental Interpretation, Vermilion Community College, Ely, Minnesota. Additional course work in Earth Science and Education, University of Minnesota, Duluth, Minnesota. BS Crop Science and Plant Protection, University of Idaho, Moscow, Idaho.

Current Employer: USDA Natural Resources Conservation Service, Pomeroy, WA.

Current Responsibilities: Responsible for planning, design, and installation of riparian and fish habitat improvement structures in the three model watersheds of southeastern Washington. Assist conservation districts and landowners in securing local permits and in agency consultations.

FTE / Hours Spent on This Project: .33 FTE / 1,320 Hours

Previous Recent Employment:

- * 9/94-Present: Soil Conservationist, NRCS, Pomeroy, WA.
- * 7/91-9/94: Soil Conservationist, NRCS, Vancouver, WA.
- * 1/83-7/91: Soil Conservationist, NRCS, Moscow, Id.
- * 7/81-1/83: Soil Conservationist, NRCS, Hailey, Id.

Expertise: Training in Erosion and Sediment Control Systems, Soil Bioengineering, Hydraulics for Technicians, Environmental Concerns in Conservation Planning and Application, Forest Water Quality, And Cultural Resource Training.

Resume for Roberta L. Lewis
USDA Natural Resources Conservation Service

Education: BS Civil Engineering (emphasis in Water Resources), University of Nevada, Reno. Registered Professional Engineer (Civil) in states of Idaho and California.

Current Employer: USDA Natural Resources Conservation Service, Pomeroy, WA.

Current Responsibilities: Watershed Project Engineer for Asotin Creek, Pataha Creek, and Tucannon River Model Watersheds.

FTE / Hours Spent on This Project: .33 FTE / 1,320 Hours

Previous Recent Employment:

- * Jan. 97-Present: Engineer, NRCS, Pomeroy, WA.
- * Water Conservation Program Manager, Upper Columbia Area Office
- * Inter-Field Office Engineer, NRCS, Nevada

Expertise: Construction Inspector for Emergency Watershed Project: Dozier-McCaw site on Touchet River. Attended Erosion and Sediment Control Systems training by NRCS, May 1997. Attended Geomorphology Seminar by NRCS, March 1997. Work with BPA/NPPC on planning of instream flow enhancement projects on Teanaway and Yakima Rivers. Designed and supervised construction of 14 watershed projects in 1997.

Section 10. Information/technology transfer

The Pomeroy CD produces newsletters and articles for the local newspaper for circulation to Garfield County residents and other conservation districts and their personnel. A recent article on the Pataha Creek Model Watershed will be published in "The Furrow" magazine which is distributed world wide. It was one of four watersheds in the United States selected for the conservation issue of this magazine. The local schools are involved in our watershed projects with tree plantings, insect inventories and water analysis. The district has provided an aquarium to the grade school where it is used to hatch and raise trout. Tours have been provided for landowners, other conservation districts, agency representatives and legislators.

The district will continue to:

1. Participate in Bonneville's Model Watershed coordination process.
2. Continued production and distribution of project and monitoring reports.
3. Participate in the Columbia Basin technical groups

4. Attendance and participate in watershed conferences
5. Conduct tours, travel to workshops
6. Continued with school involvement in watershed activities and monitoring.
7. Continued media coverage of watershed activities.

Congratulations!